

Notice of Allowability

Application No.

10/673,272

Applicant(s)

DEISHI, SATOSHI

Examiner

Gregory F. Cunningham

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application received 9/30/2003.
2. ☒ The allowed claim(s) is/are 1-17.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 9/30/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This action is responsive to application filed 9/30/2003.
2. The disposition of the claims is as follows: claims 1-17 are pending in the application.
Claims 1, 7, 10 and 13 are independent claims.

Allowable Subject Matter

3. Claims 1-17 are allowed.
4. The following is an examiner's statement of reasons for allowance:

Applicant's independent claims 1, 7, 10 and 13 stand novel over the related prior art.

The instant invention is contrasted with the following three (3) related prior art:

A. Shiyuu (JP 10262151 A; Application Number 09066047) discloses dispersion in inter-pixel distance sets in a dot pattern is used for a characteristic quantity to generate a dither matrix. A decision section for a small area where the number of black level pixel is to be increased divides a dot pattern into a plurality of small areas and decides small areas where the number of black level pixels is to be increased according to the order denoted by a threshold of a Bayer matrix. An inter-pixel distance dispersion calculation section 302 calculates the dispersion of the distance of all white level pixels in the decided small areas by taking weight coefficients into account. A minimum dispersion discrimination section 303 discriminates a position in each small area at which the dispersion value is the least, and a result recording section 304 records a threshold of a dither matrix corresponding to the position.

However Shiyuu's dispersion is unlike the instant invention wherein a first assignment portion assigning an initial value to a single pixel in one of said plurality of basic patterns as a

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number indicating an order to be followed to illuminate a dot in a dither matrix; and a second assignment portion selecting from said basic patterns longitudinally and laterally arranged a basic pattern remotest from any pixel assigned a number, and assigning a subsequent number to a pixel in said basic pattern selected, wherein said second assignment portion repeats assignment to assign in said basic dither pattern a number indicating an order to be followed to illuminate a dot.

B. Barton (EP 647058 A2) discloses diagonal correlation of adjacent dots in the output image while maximizing dispersion of dots; thereby producing visually unobtrusive output dot patterns. The matrix is generated according to a spatial domain cost function that determines a cost value for each candidate pixel based on respective radial distances and relative angles between a candidate pixel and the ON pixel in the matrix such that unit diagonals are favored over placement of vertically or horizontally adjacent dots.

However Barton performs this to adjacent dots unlike the instant invention to the next sequential pixel ordered value dots.

C. Finally, Moroo (JP 2001111829 A) discloses an initial dither matrix setting section that sets an initial dither matrix where pixels are arranged in nearly a form of a regular rectangle corresponding to a prescribed gray level of the highlight side. An array generating section generates an array storing all pixels of a matrix picture in the arrangement order as the blue noise mask by seeking an air gap position placed remotest from a pixel placed at present as a position of a maximum value of a potential matrix and arranging the pixels in order based on the initial dither matrix.

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But Moroo does not place the next sequential pixel number value order as with the instant invention, that is assignment portion selecting from said basic patterns longitudinally and laterally arranged a basic pattern remotest from any pixel assigned a number, and assigning a subsequent number to a pixel in said basic pattern selected, wherein said second assignment portion repeats assignment to assign in said basic dither pattern a number indicating an order to be followed to illuminate a dot.

Although independent apparatus claim 1 has been exemplified, independent method claim 7 and independent program product claim 10 employ similar claim elements as claim 1. Independent apparatus claim 13 employs somewhat boarder language however, is still narrow enough to distinguish over that which is disclosed by Shiyuu, Barton and Moroo, either singular or in combination.

Claims 2-6, 8-9, 11-12 and 14-17 depend from allowed independent claims 1, 7, 10 and 13 and therefore are also allowed.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Responses

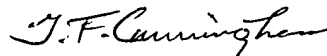
6. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9306 may be used for formal communications.

Inquiries

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Greg Cunningham

Examiner

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MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

9/27/2005